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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,510	10/12/2001	Wolf-Dietrich Weber	02998.P017	3990

7590

08/26/2003

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EXAMINER

NGUYEN, THAN VINH

ART UNIT

PAPER NUMBER

2187

DATE MAILED: 08/26/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/977,510

Applicant(s)

WEBER, WOLF-DIETRICH

Examiner

Than Nguyen

Art Unit

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/4/02, 6/19/02, 7/1/02, 8/21/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3,5,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. Claims 1-17 are pending.
2. The IDSes, filed 1/4/02, 6/19/02, 7/1/02, 8/21/02 have been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 1-3,9,10,12 are rejected under 35 U.S.C. 102(e) as being anticipated by Aref et al (USP 6,023,720).

As to claims 1,2,10,12:

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5. Aref teaches a disk scheduling system. Aref teaches scheduling access to a resource comprising: combining quality of service (QOS) scheduling for processing request threads, that substantially maintains QOS for each thread, and resource scheduling, that substantially maximizes resource efficiency (guaranteeing QOS by efficient resource scheduling; 4/14-64). Aref teaches substantially maintaining QOS for each request thread by maintaining/guaranteeing QOS to the access/read requests (4/14-33). Aref teaches resource scheduling to maximize resource efficiency by performing resource/disk scheduling to minimize seek time and guaranteeing data delivery at specified time(4/34-64).

As to claim 3:

6. Aref teaches the stages are ordered to determine an order of requests to meet QOS guarantees and determine an order of requests for resource efficiency such that if the resource efficiency order satisfies QOS guarantees, a request is scheduled according to a first resource efficiency order, else a request is schedule in accordance with a second resource efficiency order (schedule request based on EDF algorithm to guarantee QOS; 4/5-39).

7. Claims 1-17 are rejected under 35 U.S.C. 102(a) as being anticipated by Rixner (Memory Access Scheduling, 2000).

As to claims 1,2,10,11,12:

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8. Rixner teaches combining scheduling of requests and scheduling of request and maintaining order of requests while maintaining QOS scheduling and resource scheduling (pg. 2 col 2 - pg. 3 col 1; pg. 4 col 1).

As to claim 3:

9. Rixner teaches determining an order of requests to meet QOS guarantees (scheduling base on request arrival; pg. 1 col 1; pg. 7 col 2 - pg. 8 col 1);

determining an order of requests for resource efficiency (pick scheduling policy; pg. 4 col 2, Table 1); and

if the resource efficiency order satisfies QOS guarantees, and order is maintained, scheduling a request according to a first resource efficiency order, else scheduling with a second resource efficiency order (pick best scheduling policy; pg. 4 col 2 , Table 1).

As to claims 4-6,13-15:

10. Rixner teaches maintaining and using a thread scheduling/access history(bandwidth usage), to determine scheduling of threads (use most pending policy schedules access base based on the most demanded row which means that a history is kept of the bandwidth usage to determine which is the most demanded/highest bandwidth; Table 1).

As to claim 7:

11. Rixner teaches maintaining prioritizing threads according to bandwidth usage and sequencing requests (use most priority policy which schedules access base based on the most highest priority operations.; Table 1).

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As to claim 8,16:

12. Rixner teaches scheduling based on cost-function scheduling (fewest pending policy which weighs fewest pending and most pending policies to perform access; Table 1).

As to claim 9,17:


13. Rixner teaches scheduling for DRAM and deciding which bank to use (memory access scheduling for DRAM; pg. 1 col 2; pg. 3-4).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Than Nguyen whose telephone number is (703) 305-3866. The examiner can normally be reached on M-F from 8:00 a.m. to 3:00 p.m. EST.

15. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9600.

16. The fax phone number for Art Unit 2187 is 703-308-9051 or 703-308-9052.



Than Nguyen

Primary Patent Examiner

August 22, 2003

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